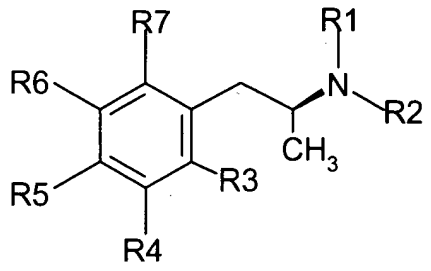
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) An (S)-enantiomer compound having the formula (I):



(I)

wherein:

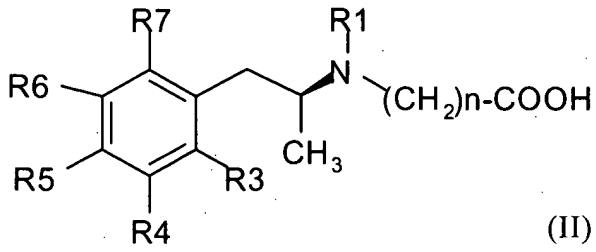
R_1 and R_3 are selected from the group consisting of hydrogen, and a C_1-C_3 alkyl;

R_2 is selected from the group consisting of hydrogen, a C_1-C_3 alkyl and a polymethylene chain: $(CH_2)_n$-COOH wherein n is an integer between 1 and 6;

R_4, R_6 and R_7 are the same or different and are selected from the group consisting of hydrogen, a halogen, $-OR_9$ and-SR_9, wherein R_9 is hydrogen or a C_1-C_3 alkyl; and

R_5 is selected from the group consisting of hydrogen, a polymethylene chain: $-(CH)_m-R_{10}$ and an oxy-polymethylene chain : $-O-(CH_2)_m-R_{10}$, wherein $-R_{10}$ is selected from the group consisting of carboxyl, thiol, $-CONHR_{13}SH$, and $-CONHCHR_{11}SH$, wherein R_{13} is selected from the group consisting of $-CH(COOH)CH_2-$ and $-(CH_2)_m-$, wherein m is an integer between 1 and 4, with the proviso that when R_1 is hydrogen and R_2 is a methyl or when R_1 is a methyl and R_2 is hydrogen, then R_5 is not a polymethylene chain: $-(CH_2)_m$-COOH.

2. (currently amended) A compound having formula (II)



(II)

wherein n is an integer between 1 and 6,

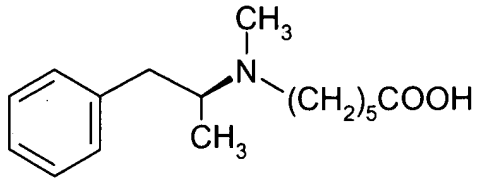
R_1 and R_3 are selected from the group consisting of hydrogen, and C_1-C_3 alkyl;

R_4, R_6 and R_7 are the same or different and are selected from the group consisting of hydrogen, a halogen, -OR_9 and –SR_9, wherein R_9 is hydrogen or a C_1-C_3 alkyl; and

R_5 is selected from the group consisting of hydrogen, a polymethylene chain: -$(CH)_m$-R_{10} and an oxy-polymethylene chain : -O-$(CH_2)_m$-R_{10}, wherein –R_{10} is selected from the group consisting of carboxyl, thiol, -$CONHR_{13}SH$, and -$CONHCHR_{11}SH$, wherein R_{13} is selected from the group consisting of –$CH(COOH)CH_2$- and –$(CH_2)_m$- and wherein m is an integer between 1 and 4, with the proviso that when R_1 is hydrogen and R_2 is a methyl or when R_1 is a methyl and R_2 is hydrogen, then R_5 is not a polymethylene chain: –$(CH_2)_m$-$COOH$,

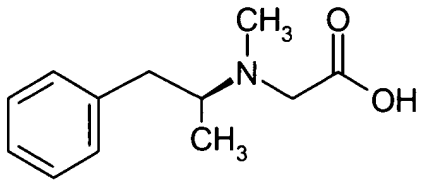
wherein said comound is an (S) enantiomer or an (R) enantiomer.

3. (original) The compound according to Claim 2, having formula (VI):



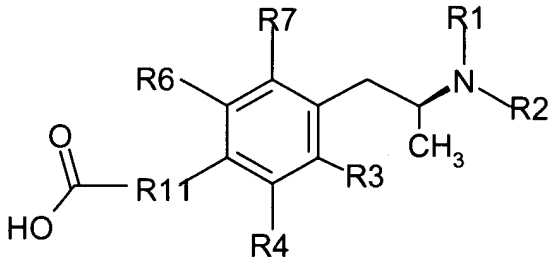
(VI)

4. (original) The compound according to Claim 2, having formula (VII):



(VII)

5. (currently amended) A compound having formula (IIIa):



(IIIa)

wherein;

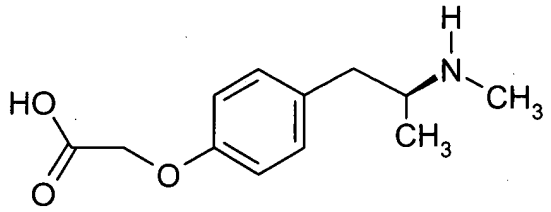
R_1 and R_3 are selected from the group consisting of hydrogen, and C_1-C_3 alkyl;

R_2 is selected from the group consisting of hydrogen, a C_1-C_3 alkyl and a polymethylene chain: $(CH_2)_n$-COOH, wherein n is an integer between 1 and 6;

R_4, R_6 and R_7 are the same or different and are selected from the group consisting of hydrogen, a halogen, $-OR_9$ and $-SR_9$, wherein R_9 is hydrogen or a C_1-C_3 alkyl; and,

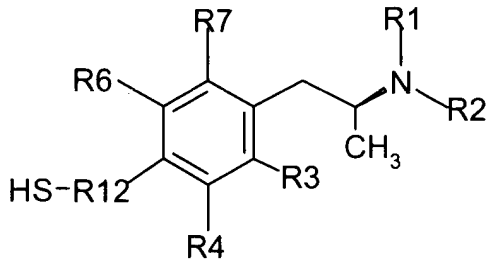
R_{11} is selected from the group consisting of a polymethylene chain: $-(CH_2)_m-$, wherein m is an integer between 1 and 3 and an oxy-polymethylene chain: $-O(CH_2)[[_m]]_o-$, wherein [[m]]o is an integer between 1 and 4, with the proviso that when R_1 is a methyl, then R_{11} is not a polymethylene chain: $-(CH_2)_m-$.

6. (original) The compound according to Claim 5 having formula (IV):



(IV)

7. (original) A compound having formula (IIIb)



(IIIb)

wherein,

R_1 and R_3 are selected from the group consisting of hydrogen, and a C_1-C_3 alkyl;

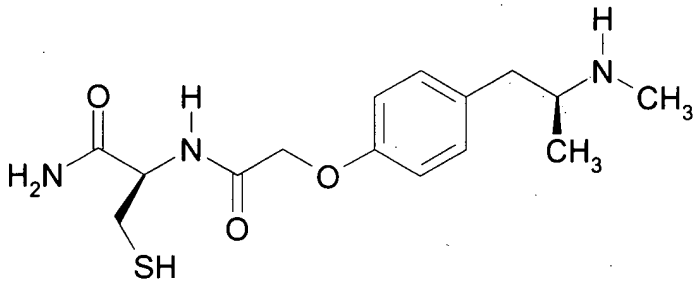
R_2 is selected from the group consisting of hydrogen, a C_1-C_3 alkyl and a polymethylene chain: $(CH_2)_n$-COOH, wherein n is an integer between 1 and 6;

R_4, R_6 and R_7 are the same or different and are selected from the group consisting of hydrogen, a halogen, $-OR_9$ and $-SR_9$, wherein R_9 is hydrogen or a C_1-C_3 alkyl ; and

R_{12} is selected from the group consisting of a polymethylene chain: $(CH_2)_mCONHR_{13}$ and an oxy-polymethylene chain: $-O(CH_2)_mCONHCH-R_{13}$; wherein R_{13} is selected from the group consisting of $-CH(COOH)CH_2-$ and $-(CH_2)_m-$, wherein m is an integer between 1 and 4, with the

proviso that when R_1 is hydrogen and R_2 is a methyl or when R_1 is a methyl and R_2 is hydrogen, then R_5 is not a polymethylene chain: $-(CH_2)_m$-COOH.

8. (original) The compound according to Claim 7 having formula (V):



(V)

9. (original) A method for obtaining a compound according to Claim 4, said method comprising the steps of:

(a) alkylating a methamphetamine derivative having formula (IX) as shown in Figure 1 by addition of $Br(CH_2)_nCOOBn$, wherein n is an integer between 1 and 6, whereby an addition product of formula (X) as shown in Figure 1 is obtained ; and

(b) hydrogenating said addition product of formula (X), whereby a compound according to Claim 4 is obtained.

10. (original) A method for obtaining a compound according to Claim 5, said method comprising the steps of:

(a) condensing a a compound of formula (XI) as shown in Figure 2, with CH_3CH_2-NO_2, whereby a nitrostyrene derivative of formula (XII) as shown in Figure 2 is obtained;

(b) reducing said nitrostyrene derivative (XII), whereby an amphetamine derivative of formula (XIII) as shown in Figure 2 is obtained;

(c) alkylating the primary amine of said amphetamine derivative whereby a compound of formula (XIV) as shown in Figure 2 is obtained;

(d) acylating the amine group on said amphetamine derivative (XIII) or said compound of formula (XIV), whereby a protected derivative of a compound having formula (XV) as shown in Figure 2 is obtained;

(e) hydrogenating said protected derivative (XV), whereby a compound having a formula (XVI) as shown in Figure 2 is obtained;

(f) alkylating the phenol groups of said compound of formula (XVI) with benzylbromoalkylcarboxylate, whereby a benzylester compound of formula (XVII) as shown in Figure 2 is obtained;

(g) hydrogenating said benzylester compound of formula (XVII) whereby a carboxylic derivative of formula (XVIII) as shown in Figure 2 is obtained;

(h) deprotecting the amino group of said carboxylic acid derviative (XVIII); and

(i) separating the enantiomers so obtained, whereby compounds according to Claim 5 are obtained.

11. (original) The method according to Claim 10 steps (a) through (g) further comprising the steps of:

(j) acylating (R)H-cys(Otrt)-NH2 with said carboxylic derivative (XVIII);

(k) separating the resulting diastereoisomer mixture whereby an S-isomer having formula (XIX) as shown in Figure 2 is obtained; and

(l) removing acid-sensitive protecting groups from said S-isomer having formula (XIX), whereby a compound according to Claim 7 is obtained.

12. (original) The method according to Claim 10 or Claim 11, wherein said alkylating step (c) comprises:

contacting said compound of formula (XIII) with trifluoroacetic anhydride;

alkylating the resulting trifluoroacetamide with an alkyl halide; and

removing the trifluoroacetyl group in basic medium.

13. (original) The method according to Claim 10 or Claim 11, wherein said alkylating step (c) comprises:

contacting said compound of formula (XIII) with an acid anhydride to obtain an amide; and

reducing said amide with lithium aluminium hydride.

14. (original) A method for obtaining a compound according to Claim 5, said method comprising the steps of:

(a) reducing a tyrosine ester derivative of a compound of formula (XXII) as shown in Figure 3, whereby an alcohol derivative of formula (XXIII) as shown in Figure 3 is obtained;

(b) alkylating said alcohol derivative (XXIII) whereby a compound of formula (XXIV) as shown in Figure 3 is obtained;

(c) hydrogenating said compound of formula (XXIV) whereby a phenol derivative of formula (XXV) as shown in Figure 3 is obtained;

(d) contacting said phenyl derivative (XXV) with benzylbromoalkylcarboxylate whereby an ester derivative of formula (XXVI) as shown in Figure 3 is obtained; and

(e) hydrogenating said ester derivative (XXVI) whereby a compound according to Claim 5 is obtained.

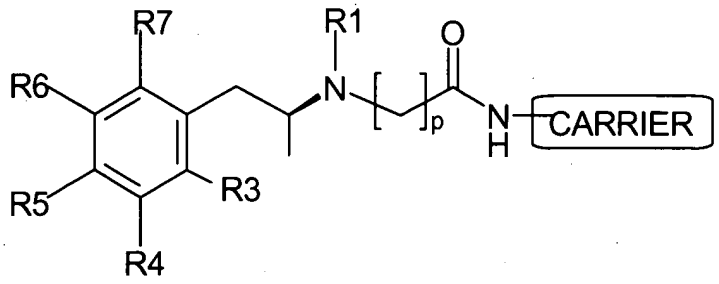
15. (currently amended) An amphetamine-related immunogen comprising:

a compound having formula (I) covalently conjugated to a carrier,

wherein said compound is an (S) enantiomer or an (R) enantiomer.

16. (currently amended) An amphetamine-related immunogen I1 comprising:

a compound having formula (II) covalently conjugated to a carrier,



I1

wherein p is an integer between 1 and 6;

wherein R_1 and R_3 are selected from the group consisting of hydrogen, and C_1-C_3 alkyl;

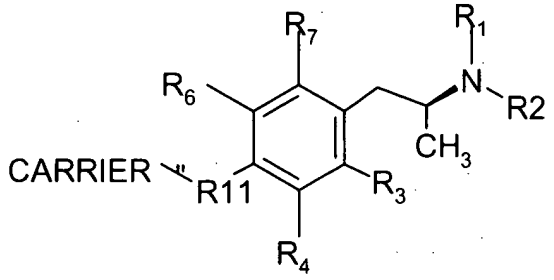
R_4, R_6 and R_7 are the same or different and are selected from the group consisting of hydrogen, a halogen, $-OR_9$ and $-SR_9$, wherein R_9 is hydrogen or a C_1-C_3 alkyl; and

R_5 is selected from the group consisting of hydrogen, a polymethylene chain: $-(CH)_m-R_{10}$ and an oxy-polymethylene chain : $-O-(CH_2)_m-R_{10}$, wherein $-R_{10}$ is selected from the group consisting of carboxyl, thiol, $-CONHR_{13}SH$, and $-CONHCHR_{11}SH$, wherein R_{13} is selected from the group consisting of $-CH(COOH)CH_2-$ and $-(CH_2)_m-$ and wherein m is an integer between 1 and 4, with the proviso that when R_1 is hydrogen and R_2 is a methyl or when R_1 is a methyl and R_2 is hydrogen, then R_5 is not a polymethylene chain: $-(CH_2)_m-COOH$,

wherein said compound is an (S) enantiomer or an (R) enantiomer.

17. (original) An amphetamine-related immunogen I2 comprising:

a compound having formula (IIIa) covalently conjugated to a carrier,



I2

wherein R_1 and R_3 are selected from the group consisting of hydrogen, and C_1-C_3 alkyl;

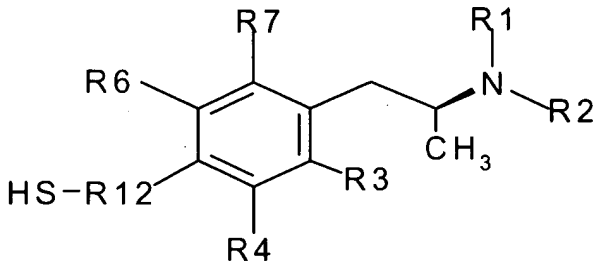
R_2 is selected from the group consisting of hydrogen, a C_1-C_3 alkyl and a polymethylene chain: $(CH_2)_n$-COOH, wherein n is an integer between 1 and 6;

R_4, R_6 and R_7 are the same or different and are selected from the group consisting of hydrogen, a halogen, $-OR_9$ and $-SR_9$, wherein R_9 is hydrogen or a C_1-C_3 alkyl; and,

R_{11} is selected from the group consisting of a polymethylene chain: $-(CH_2)_m$- and an oxy-polymethylene chain: $-O(CH_2)_m$-, wherein m is an integer between 1 and 4, with the proviso that when R_1 is a methyl, then R_{11} is not a polymethylene chain: $-(CH_2)_m$-.

18. (original) An amphetamine-related immunogen I3 comprising:

a compound having formula (IIIb) covalently conjugated to a carrier,



I3

wherein R_1 and R_3 are selected from the group consisting of hydrogen, and a C_1-C_3 alkyl;

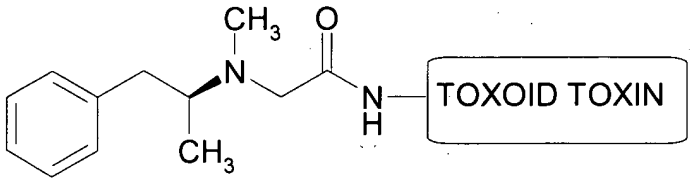
R_2 is selected from the group consisting of hydrogen, a C_1-C_3 alkyl and a polymethylene chain: $(CH_2)_n$-COOH, wherein n is an integer between 1 and 6;

R_4, R_6 and R_7 are the same or different and are selected from the group consisting of hydrogen, a halogen, $-OR_9$ and $-SR_9$, wherein R_9 is hydrogen or a C_1-C_3 alkyl; and

R_{12} is selected from the group consisting of a polymethylene chain: $(CH_2)_mCONHR_{13}$ and an oxy-polymethylene chain: $-O(CH_2)_mCONHCH-R_{13}$; wherein R_{13} is selected from the group consisting of $-CH(COOH)CH_2$- and $-(CH_2)_m$-, wherein m is an integer between 1 and 4, with the proviso that when R_1 is hydrogen and R_2 is a methyl or when R_1 is a methyl and R_2 is hydrogen, then R_5 is not a polymethylene chain: $-(CH_2)_m$.

19. (original) An amphetamine-related immunogen according to any one of Claims 15 to 18, wherein said carrier is a protein selected from the group consisting of tetanus toxin, bovine serum albumin, ovalbumin, KLH, or a peptidic fragment of any of the proteins in said group.

20. (original) The amphetamine-related immunogen TT-Met1 having the formula.



21. (original) A pharmaceutical composition comprising:
at least one amphetamine-related immunogen according to Claim 15.

22. (original) A vaccine comprising at least one amphetamine-related immunogens according to Claim 18 or Claim 20.

23. (currently amended) Antibodies or fragments or chains of immunoglobulins having affinity for one or more amphetamine or derivative of amphetamine, wherein said amphetamine or derivative of amphetamine is an (S) enantiomer or an (R) enantiomer.

24. (original) The antibodies according to Claim 23, wherein said antibodies are monoclonal antibodies.

25. (original) The antibodies according to Claim 23 or Claim 24, wherein said antibodies are neutralizing antibodies.

26. (original) The antibodies according to Claim 24, wherein said antibodies are capable of binding to at least two different amphetamines or amphetamines derivatives.

27. (original) The antibodies according to Claim 26, wherein said at least two different amphetamines or amphetamine derivatives comprise methamphetamine and ecstasy.

28. (original) A monoclonal antibody produced by hybridoma DASM243-6H5D1C4.

29. (original) A monoclonal antibody produced by hybridoma DASM243-3A10A6A2.

30. (original) A composition comprising:
a cell line producing a monoclonal antibody according to Claim 24.

31. (original) The composition according to Claim 30, wherein said antibodies are murine antibodies.

32. (original) The murine hybridoma DASM243-645D1C4 having accession number CNCM I-2750.

33. (original) A cell line which produces monoclonal antibodies having the same antigenic specificity as that of monoclonal antibodies expressed by cell line DASM243-645D1C4.

34. (original) Monoclonal antibodies derived from a hybridoma according to Claim 33.

35. (original) An immunoglobulin fragment or chain derived from a monoclonal antibody having the binding specificity of a monoclonal antibody according to Claim 34.

36. (original) Monoclonal antibodies according to Claim 24, labelled with an agent capable of providing a detectable signal.

37. (original) An immunoglobulin fragment or chain according to Claim 35, labelled with an agent capable of providing a detectable signal.

38. (original) A pharmaceutical composition comprising:

at least one antibody according to Claim 23, capable of binding to one or more amphetamine derivatives.

39. (original) A method for ameliorating symptoms of amphetamine abuse in a patient in need thereof, said method comprising:

providing said patient with a pharmaceutical composition according to Claim 37, in an amount sufficient to ameliorate said symptoms.

40. (original) The method according to Claim 38, wherein said symptoms are a result of ingesting two or more amphetamine derivatives and said at least one antibody is capable of binding to at least two of said two or more amphetamine derivatives.

41. (original) A method of prophylactic treatment of abuse of amphetamines in a patient in need thereof, said method comprising:

immunizing said patient with a vaccine according to Claim 22.

42. (original) A compound according to any one of Claims 2 to 8, wherein said compound is the S-enantiomer.

43. (original) Isolated nucleic acid encoding the heavy and light chains of monoclonal antibody DASM243-645D1C4 or DASM243-3A10A6A2.

44. (original) Isolated nucleic acid encoding a polypeptide derived from monoclonal antibody DASM243-645D1C4 or DASM243-3A10A6A2.

45. (original) The isolated nucleic acid according to Claim 44, wherein said polypeptide is a light chain protein.

46. (original) The isolated nucleic acid according to Claim 43, wherein said nucleic acid is DNA.

47. (original) The isolated nucleic acid according to Claim 43, wherein said nucleic acid molecule is cDNA.

48. (original) An expression vector comprising:

nucleic acid according to Claim 43 operably linked to transcriptional and translational regulatory regions.

49. (original) A host cell comprising:

an expression vector according to Claim 48.

50. (original) The host cell according to Claim 49, wherein said cell is a eukaryotic cell.

51. (original) A process for producing an immunoglobulin specific for at least two amphetamines or amphetamine derivatives or an immunologically functional immunoglobulin fragment thereof comprising at least the variable domains of the heavy and light chains of said immunoglobulin, said method comprising:

growing a host cell comprising expression vectors comprising nucleic acid encoding respectively the heavy and light chains of monoclonal antibody DASM243-645D1C4 or DASM243-3A1 or functional fragments thereof, so that said nucleic acid is expressed, whereby said immunoglobulin is obtained.